

REMARKS

Applicants appreciate the detailed examination evidenced by the Official Action mailed July 22, 2003 (hereinafter the Official Action). As discussed herein in greater detail, Applicants have amended independent Claim 24 to further clarify that the retardation of polarized light and the imparting of information thereon is responsive to different states of the DC balancing signal. Applicants submit that the recitations of the claims are not disclosed or suggested by the cited references. For example, amended independent Claim 24 recites in-part:

retarding polarized light using a quarter-wave compensator in an on-state **responsive to a first state of a DC balancing signal** to provide retarded light and avoiding retarding the polarized light using the quarter-wave compensator in an off-state **responsive to a second state of the DC balancing signal**, that is opposite the first state;

imparting information on the retarded polarized light using a quarter-wave imager in an on-state **responsive to the first state of the DC balancing signal** to provide imaged retarded polarized light and avoiding imparting information on the retarded polarized light using the quarter-wave compensator in an off-state **responsive to the second state of the DC balancing signal**. (*See, for example, Application, pages 8-10.*)

Applicants note that similar recitations are included in the claims of the parent application of the present case which is now US Patent No. 6,313,893 which were found to be patentable over the same the references discusses below with reference to the rejections under section 102. Applicants have also amended dependent Claims 25 and 26 to further clarify those recitations. Applicants respectfully submit that Claims 24-28 are patentable for at least the reasons discussed herein.

The title has been amended as requested by the Examiner

Applicants have amended the title of the present invention to read as "METHODS OF COMPENSATING LIQUID CRYSTAL DISPLAYS USING DC BALANCING."

Amended independent Claim 24 is patentable over Mitsutake et al. and Kaneko et al.

Claims 24 and 27-28 stand rejected under 35 USC § 102(e) over U.S. Patent No. 5,568,283 to Mitsutake et al. (Mitsutake) and separately over U.S. Patent No. 5,615,025 to

Kaneko et al. (Kaneko). (*Official Action*, pages 2-3). Applicants respectfully submit that Mitsutake and Kaneko do not disclose the recitations of amended independent Claim 24:

retarding polarized light using a quarter-wave compensator in an on-state responsive to a first state of a DC balancing signal to provide retarded light and avoiding retarding the polarized light using the quarter-wave compensator in an off-state responsive to a second state of the DC balancing signal, that is opposite the first state;

imparting information on the retarded polarized light using a quarter-wave imager in an on-state responsive to the first state of the DC balancing signal to provide imaged retarded polarized light and avoiding imparting information on the retarded polarized light using the quarter-wave compensator in an off-state responsive to the second state of the DC balancing signal;

reflecting the imaged retarded polarized light back toward the quarter-wave compensator and the quarter-wave imager to provide reflected and retarded polarized light; and

further retarding the reflected and retarded polarized light using the quarter-wave compensator and the quarter-wave imager.

Contrary to the above-emphasized recitations of amended independent Claim 24, the device in Mitsutake includes a half wave plate and a quarter wave plate. For example, as shown in Figures 2A and 2B of Mitsutake, the liquid crystal film 11 functions as a halfwave plate and the plate 14 functions as a quarter wave plate. (*Mitsutake*, column 4, lines 65-67 and column 5, lines 10-40). Therefore, Mitsutake does not disclose using a quarter wave compensator and a quarter wave imager.

Furthermore, as understood by Applicants, the plate 14 of Mitsutake does not have more than one state. For example, Mitsutake does not disclose or suggest that the plate 14 has different states that provide different rotations. (*Mitsutake*, column 5, lines 10-38).

In addition, Mitsutake makes no mention of DC balancing. In fact, Mitsutake appears to be a static device that does not coordinate the operation of the halfwave plate. In contrast, as recited in amended independent Claim 24, polarized light is retarded using the quarter wave compensator "in an on-state responsive to a first state of a DC balancing signal to provide the retarded line" and "avoiding retarding the polarized light using the quarter wave compensator in an off-state responsive to a second state of the DC balancing signal" and

"imparting information using a quarter wave imager in an on-state responsive to the first state of the DC balancing signal and avoiding imparting information on the retarded polarized light using the quarter wave compensator in an off-state responsive to the second state of the DC balancing signal." Accordingly, Mitsutake does not disclose the recitations of amended independent Claim 24 for at least these reasons. Furthermore, dependent Claims 25-28 are patentable at least per the patentability of amended independent Claim 24.

Applicants also respectfully submit that Kaneko does not disclose the recitations of amended independent Claim 24. In particular, as understood by Applicants, Kaneko compensates for temperature drift associated with the optical modulation devices discussed therein. (*Abstract of Kaneko*). The optical modulation device of Kaneko compensates for thermal drift by including two liquid crystal layers which have respective retardation actions with equal magnitudes but opposite directions. (*Kaneko, column 4, lines 31-34*). Therefore, as understood by Applicants, in order for Kaneko to have its desired effect, the second liquid crystal layer 13 is left in a state so as to provide the desired retardation regardless of the state of the first liquid crystal layer 12. For example, Figure 1 of Kaneko shows that the first liquid crystal layer 12 is subject to a variable electrical field while the second liquid crystal layer 13 is subject to a steady state electrostatic field. Kaneko, therefore, does not disclose at least:

retarding polarized light using a quarter-wave compensator in an on-state responsive to a first state of a DC balancing signal to provide retarded light and avoiding retarding the polarized light using the quarter-wave compensator in an off-state responsive to a second state of the DC balancing signal, that is opposite the first state;

imparting information on the retarded polarized light using a quarter-wave imager in an on-state responsive to the first state of the DC balancing signal to provide imaged retarded polarized light and avoiding imparting information on the retarded polarized light using the quarter-wave compensator in an off-state responsive to the second state of the DC balancing signal.

Furthermore, dependent Claims 25-28 are patentable over Kaneko at least per the patentability of amended independent Claim 24.

Applicants also respectfully traverse the rejection of Claims 25-26 under 35 USC § 103 over various other references as none of the other references, either singularly or in

combination, discloses or suggests the recitations discussed above shown to be missing from Mitsutake and Kaneko. Accordingly, Claims 25-26 are also patentable for at least these additional reasons.

CONCLUSION

Applicants have amended independent Claim 24 to further clarify the responsive nature of the quarter wave compensator and quarter wave imager for the purposes of DC balancing. Applicants also have submitted copies of the non-patent references, which were omitted from Applicants IDS filed on October 19, 2001. Accordingly, Applicants have addressed all outstanding issues of the present case and respectfully request the withdrawal of all rejections and the allowance of all claims. If any informal matters arise, the Examiner is encouraged to contact the undersigned by telephone at (919) 854-1400.

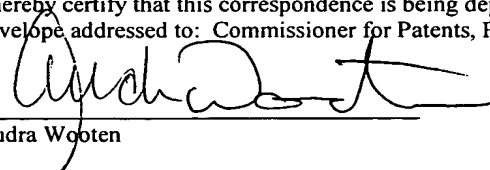
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I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on November 21, 2003.


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